

Amendments to the Drawings

Please amend Figure 1 by adding the legends to the various blocks 1-5 as found on the enclosed Replacement sheet of formal drawing for Fig. 1.

REMARKS

The Office Action of March 27, 2006, and the references cited therein have been carefully considered.

In this Amendment, Fig. 1 and the specification have been amended to overcome the formal rejections of same. Moreover, claims 1, 2 and 4 have been amended to overcome the Examiner's formal rejection of same without changing the intended scope of the claims. Moreover, all of the claims and the specification have been amended to correct noted informalities, and new claims 6 and 7, dependent on claims 1 and 4, respectively, have been added to recite feature deleted from these claims as a result of the formal amendments.

The objection to the drawings under 37 C.F.R. 1.84 (p) (5) has been noted. In response thereto, paragraph [0017] of the specification has been amended to provide a proper reference to the reference numeral "St4". Accordingly, it is submitted that no amendment to the drawings is required and that this ground of objection has been overcome and should be withdrawn.

The objection to the drawings under 37 C.F.R. 1.83 (a) likewise has been noted. In response thereto, Figure 1 has been amended to provide proper legends, consistent with the description thereof in the specification, for the various blocks of the block circuit diagram. Moreover, as indicated above, the specification has been amended to indicate that the power is supplied by the relay unit 4 to the systems 5 via the line St4, so that no further amendment with regard to showing the supply of power is required. Accordingly, with these amendments to the drawings, it is submitted that this ground of objection has been overcome and should be withdrawn.

It is requested that the Examiner indicate receipt and approval of the enclosed sheet of Replacement formal drawing in the next communication.

In view of the amendment to paragraph [0017] mentioned above, it is further submitted that the objection to the specification has been overcome and should be withdrawn.

Reconsideration of the rejection of claims 1, 2 and 4 under 35 U.S.C. 112, second paragraph, is respectfully requested. With regard to the rejection of claims 1 and 4 found on page 4 of the Office Action, each of these claims has been amended

to delete the narrowing language objected to by the Examiner. Moreover claim 2 has been amended to provide proper antecedent basis for all of the terms and to clarify the meaning of the original language of this claim in order to overcome the Examiner's objections. Finally, claim 4 has been amended to more clearly define what is meant by the instruction "return to the start". That is, claim 4 has been amended to more specifically and positively indicate that the meaning of this term was that a return to step S1 of the method, i.e., the start of the method steps, was to be undertaken. In any case, with these amendments, it is submitted that the formal rejection of claims 1, 2 and 4 has been overcome.

In view of the above, an initial action on the technical merits of claims 2 and 4 is requested. Moreover, an action on the merits of claim 5, which was entered by the Preliminary Amendment filed February 2, 2005, but was not mentioned in the Office Action, likewise is requested.

The rejection of claim 1 under 35 U.S.C §103 as being unpatentable over the patent to Giers in view of the patent to Lo has been noted and is respectfully traversed. In urging this ground of rejection, the Examiner has basically taken the position that the Giers patent teaches a redundant control system for a safety relevant system of a motor vehicle involving two drive devices or controllers, wherein the drive devices drive actuators and are connected to a communication channel, but do not teach a third drive device, voltage monitoring devices in the two drive devices or the inter relationship between the three drive devices as stated in paragraph 4 on page 7 of the Office Action; that the Lo patent teaches a triple redundant control arrangement containing the three drive devices for a similar control system, with the three control devices including voltage monitoring devices and essentially being interrelated and operating in the manner mentioned in paragraph 4 and as recited in the claim; and that consequently it would be obvious to incorporate the triple redundant power system of Lo into the system of Giers and arrive at applicant's claimed invention. It is initially submitted that one skilled in the art would not consider combining the teachings of these two references since the basic systems are completely different so that the incorporation suggested by the Examiner would essentially completely destroy the invention of the Giers patent. It is further submitted that even if the combination were made, the result would not be the

invention defined in claim 1 since the Lo patent does not have controllers which are inter related and operate in the manner according to the present invention as defined in claim 1.

The present invention as defined in claim 1 includes a single or common relay or switching unit (4) which is addressed and controlled by three different drive devices or controllers (1, 2 and 3), with the control by the three drive devices being carried out in a fixed sequential manner. On the other hand, the Lo arrangement contains three identical switching circuits (100a, 100b, 100c), each of which includes not only a load sensor (106), a source sensor (104) and a controller (108), but additionally a separate main switch (102). Consequently, completely different basic control arrangements are involved. That is, while both the present control system and the control system of Lo may be triple redundant systems, the result is achieved in entirely different manners because the basic relationships between the controllers or drive units and the actual switches or relays connected to the load or sources are different.

According to the present invention as defined in claim 1, the three drive devices or controllers are controlled by a decision algorithm in that they are ranked as a first, a second and a third drive device, with at least the second and third drive devices reading the messages produced on the common bus by the first and second drive devices, and stepping in or attempting to carry out control of the single switching or relay unit only when the immediately higher ranked controller or drive device fails to produce the desired switching operation. This is not the case according to the control arrangement of Lo.

With the Lo arrangement, there is no fixed arrangement between the three controllers of the switching circuits. That is, once a controller, e.g., controller 100a, following a "Fail" indication has determined that it is the Master and produced the "Relinquish Master Status" signal, which the Examiner has equated to the claimed signal (Anf1) produced by the first drive unit of claim 1, the particular other controller 100b or 100c which takes over the Master status is determined by an arbitration process (see steps 210 and 212 of Lo). This arbitration process, which is contrary to the limitations of claim 1, is avoided by the fixed algorithm of the present invention. Moreover, following a "Fail" condition from controller 100a and a subsequent "Fail"

condition from the controller that won the initial arbitration, e.g., controller 100c, the controller that then takes over the Master status must again win an arbitration process, so that the next Master controller need not necessarily be the third controller 111b. That is, depending on the conditions, the controller 100a might then win the arbitration, which would also be contrary to the limitations of claim 1

Accordingly, for the above additional reasons, it is submitted that claim 1 is allowable under 35 U.S.C. 103 over the combination of the Giers and Lo patents.

Reconsideration of the rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over the combination of the Giers and Lo patents as applied to claim 1, in further view of the patent to Jensen. In this ground of rejection, the Jensen patent is cited only to show that it would be obvious to use a CAN bus in a redundant vehicle control system, for example, a braking system, resulting from the combination of the Giers and Lo patents and arrive at applicant's invention as defined in claim 3. However, the Jensen patent does not overcome the basic deficiencies of the Giers and Lo combination as discussed above with respect to claim 1 from which claim 3 depends. Accordingly, it submitted that claim 3 is allowable over the cited combination of the Giers, Lo and Jensen patent for at least the same reasons as claim 1.

New claims 6 and 7 are dependent on claims 1 and 4 respectively, and are submitted to be allowable for at least the same reasons as the parent claims.

In view of the above amendments and for the above-stated reasons, it is submitted that all of the pending claims, i.e. claim 1-7, are allowable over the references and rejections of record and are in condition for allowance. Such action and the passing of this application to issue therefore are respectfully requested.

A request for the necessary extension in the period for filing this Amendment, including an order for payment of the necessary extension fee, is attached.

If the Examiner is of the opinion that the prosecution of this application would be advanced by a personal interview, then the Examiner is invited to telephone undersigned counsel to arrange for such an interview.

Respectfully submitted,
FITCH, EVEN, TABIN & FLANNERY

By: 

Norman N. Kunitz
Registration No. 20,586

FITCH, EVEN, TABIN & FLANNERY
Suite 401L
1801 K Street, NW
Washington, DC 20006-1301
Telephone: (202) 419-7000
Facsimile: (202) 419 -7007